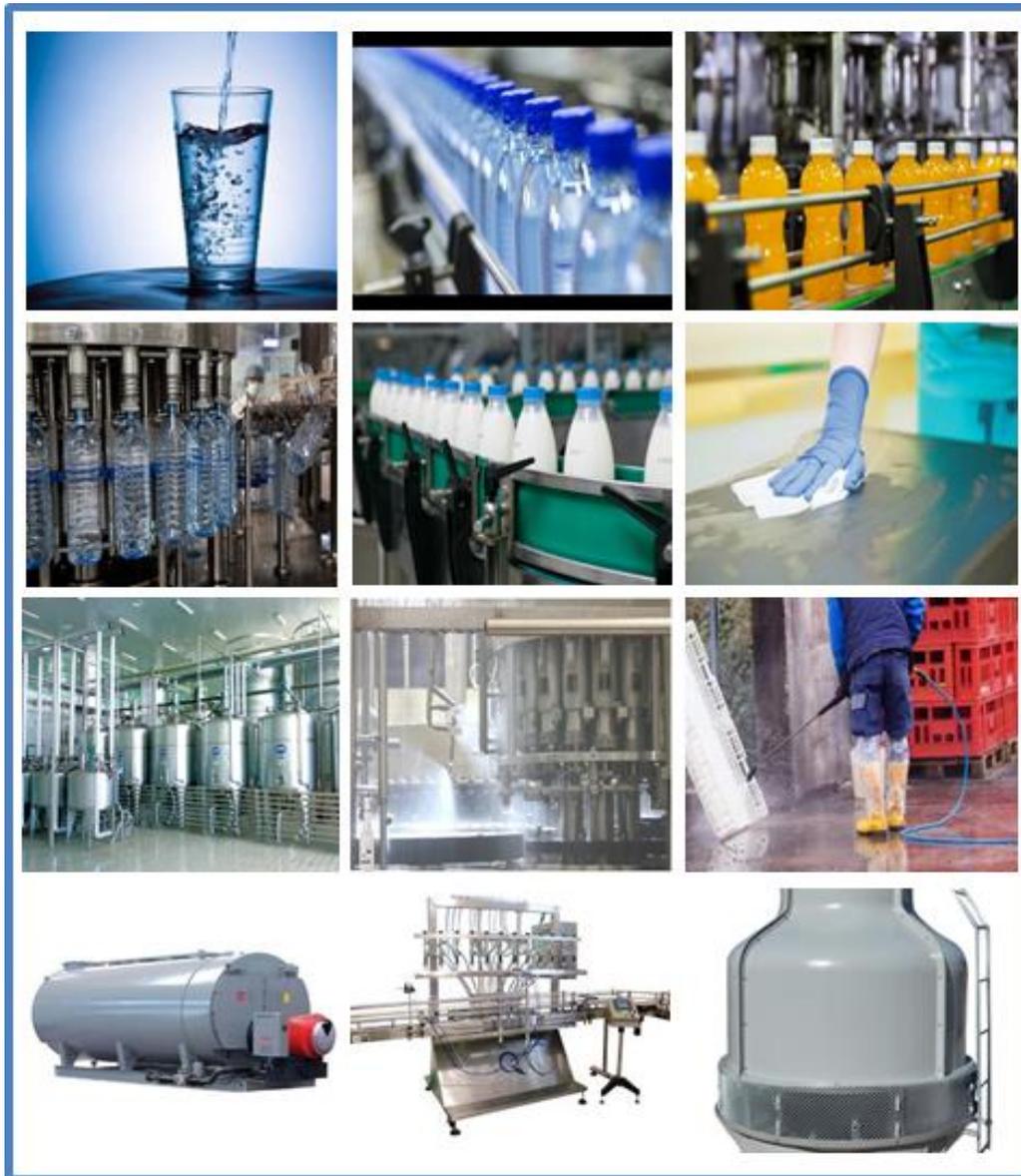


aquagroup

Aktiengesellschaft

WATER, BEVERAGE AND DAIRY PROCESSING INDUSTRY



NADES

“ECA Solutions combats innovatively and efficiently.”
We are providing the best quality products and technical solutions.
www.aquagroup.com

NADES 2-0

Making Water Company, Mineral Water Company, Beverage Company and Dairy Processing Company

A Safer Place

Applications of ECA System and ECA Solutions:

- Drinking Water Treatment & Sanitation
- Process Water Treatment & Sanitation
- Potable Water Treatment & Sanitation
- CIP Applications
- Bottle Rinsing
- Filler Flushing
- Cooling Tower Water Sanitation
- Surface Cleaning & Disinfection
- Tank Cleaning & Disinfection
- Pipeline and Water System Flushing
- Fruit and Vegetable microbial Decontamination
- Air Microbial Decontamination
- Boiler Water Treatment
- Waste Water Treatment & Sanitation

The Company

'Aquagroup Swiss GmbH Dubai Branch' is a branch of German Company 'Aquagroup AG'. It is a technology based company established with the aim to significantly improve general hygiene conditions. We are specialized in potable water treatment, surface disinfection and general hygiene improvement of food industries, hotel, resort, hospital, school, clinic, poultry farm and other buildings. Our concepts can save water and time, reduce energy costs and use of chemicals. Our main goal is to show the customers as many fields of application as possible and potential savings while offering customized solutions to tackle wide variety of germ issues. With our competence team, a staff of highly trained persons provide the customers with just the right expert for any task throughout the entire process of water treatment, surface disinfection and other applications.

The aim: To retain our common goal in making water, food, surface and environment safer.



Vision:

- We are preferred partner of the food industry from farm to fork and of other water related industries.
- We aim to be No. 1 in the fight against germs.

Mission:

- We make food and product more secure.
- We improve hygiene where water is used.
- Our solutions save water and time, reduce energy costs and the use of hazardous chemicals in certain applications.

Neglecting the issue of water risk management can have a severe impact on the health and well-being of personnel. Our company guarantees reliable standards of your water.

In recent years the general public has become increasingly aware of the water contamination, water quality, water safety and potential risk of biofilm harbouring pathogenic microbes. Management of water and beverage industries dedicated to upholding the highest quality standards cannot afford the massive media exposure, subsequent image loss and drastic financial repercussions that occur after an outbreak of legionella and other microorganisms.

Our company supports you in the creation of your unique experience for you and your end products. This starts with intensive pre-surveys identifying areas of weakness in the current system, covering not only the technical engineering aspects but also the analysis of the source of potential risks. The provision of a concept integrates the our solution into an existing functional system to increase safety.

We always guarantee risk mitigation through the permanent elimination of biofilm ensuring high water quality, according to WHO, GSO and other International Drinking Water Standards both globally and locally.

What is ECA?

ECA Technology means Electro Chemical Activation Technology. Our disinfectant product NADES 2.0 or NADES are Electrochemically Activated (ECA) solutions which are produced through our specially designed devices. A saturated brine solution is passed through a cell and the NaCl is split into chemical streams via electrolysis.

The active agents in our products are electrolyzed water with high ORP value (Oxidation Reduction Potential) and chemically active agent NaOCl.

One device – Numerous applications

Drinking and Process Water Treatment & Sanitation

- Clear germ free water.
- Risk mitigation.
- Proven biofilm elimination.
- Fully automatic system.
- Post-Installation support.

Surface Cleaning & Disinfection

- To reduce microbiological load of surface.
- To make the surface safe for use
- To avoid cross contamination.
- Save time, water, human resources and money.
- Work process can be optimized.

Food Microbial Decontamination

- To reduce microbiological contamination of the product.
- To increase shelf life of the product.
- To comply with standards, guidelines and legislations.

Cooling Tower and Evaporated Condensers Water Treatment

- Sanitize water and eliminate biofilm.
- Avoid reduction in heat transfer due to biofilm.
- Control Legionella and prevent their growth.
- Diminish the risk of microbial corrosion.
- Better distribution of water within the tower.
- Lessen particulate matter to trap and reduce the problem of fouling due to biofilm development.

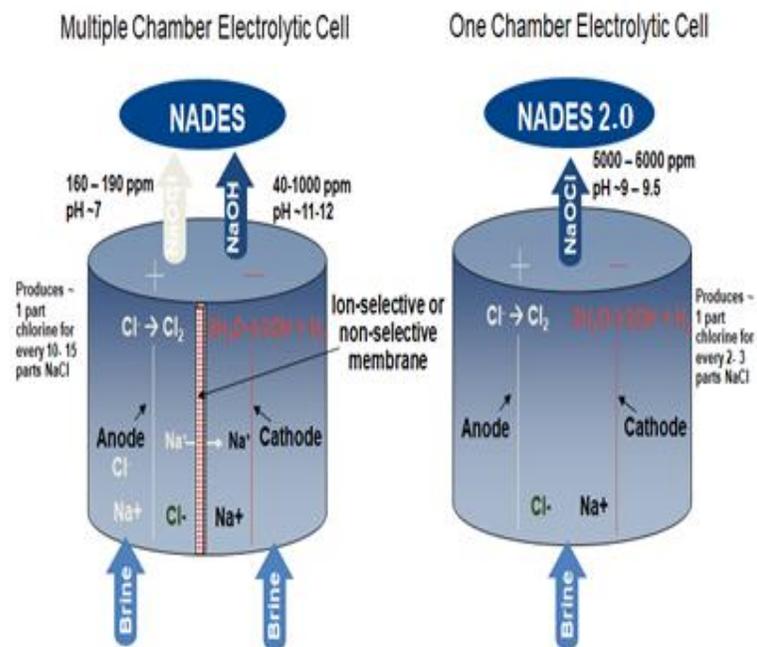
CIP Application, Bottle Rinsing and Filler Flushing

- To avoid or reduce microbial contamination.
- To carry on smooth operation.

ECA advantages

The ECA Generator offers the advantages of producing active chlorine out of a harmless Sodium Chloride salt solution and electricity. Both are **easy to handle** and **available worldwide**. This process substantially reduces the risks involved in the distribution, transport, storage and handling of the dangerous active chlorine treatment of process water. Conventionally manufactured NaOCl can produce harmful chlorates during storage.

The **just-in-time** concept of NADES or NADES 2.0 production leaves no time for chlorates building. There is less handling of hazardous goods through the automated processes; this also results in simple operation of the generator's components. The ECA solution NADES or NADES 2.0 are effective against Biofilm and has a high anti-microbiological efficacy.



Waste Water Treatment & Sanitation

- To make waste water safe and to avoid microbial contamination.
- To make waste water reusable.

Odor Removing Application

- To remove odor from the area.
- To improve indoor air quality.

Fogging Application

- To obliterate airborne spores and bacteria.
- To improve air microbial quality.

Boiler Water Treatment

- To maintain boiler water parameters as per international standards and guide lines.

Health & Safety of Personnel

The health and safety for personnel is of paramount importance to top management. Continuous investments in the design and security of water treatment are made to ensure optimal results. One of the highest risks in water management is that of biofilm.



Free swimming cells alight on a surface and attach

New genes are expressed to synthesize matrix polymers

Cells coordinate by exchanging molecules

Biofilm Formation

Many different microbes have demonstrated the ability to survive in water distribution systems with some possessing the ability to grow and/or produce biofilm. Primary pathogens survive and protect themselves in it, ultimately becoming part of this biofilm and often displaying more resistance against conventional approaches for example thermal disinfection or traditional chemical solutions. The presence of biofilms plays a significant role in harbouring and providing favorable conditions in which *Legionella pneumophila* and *Pseudomonas aeruginosa* may grow posing a serious health risk. Factors contributing to waterborne outbreaks include contaminated bunkered water, dead legs and stagnation, cross connections between potable and non-potable water, improper loading procedures, poor design and construction of potable water storage tanks and inadequate disinfection.

Fighting the biofilm — a hopeless battle?

In cold water < 20 °C *Legionella pneumophila* does not multiply but remains dormant. In countries with hot climates the cold water inlet temperature often exceeds 25 °C, ideal for microbiological growth and biofilm formation. It is a widely known fact that conventional free active chlorine solutions are relatively ineffective in eliminating biofilm.

Solution — fight the cause not the symptoms

NADES and NADES 2.0, however, is an electrochemically activated NaOCl (ECA) and when used just-in-time does not lose any efficacy. It prevents and/or hinders the growth of microbiological activity in water. A continuous inoculation with NADES and NADES 2.0 disinfects through the chlorination oxidation reaction of RNA/DNA destroying the Extra cellular Polymeric Sustainance's (EPS) of a biofilm. This EPS layer protects the microorganisms present in the biofilm and facilitates the transport of nutrients. Biofilm control is one of the important objectives for ensuring that water delivered to the guests is of the highest quality.

Expertise

LAGOTEC was instructed to cultivate biofilm under real conditions with the objective of achieving a representative prediction regarding the efficacy of NADES and NADES 2.0 in the reduction of thereof.

Our ECA Solutions NADES and NADES 2.0 are;

- Environment Friendly
- Non Toxic
- Non Hazardous
- Non- Irritating
- Germ Free
- Quick Acting

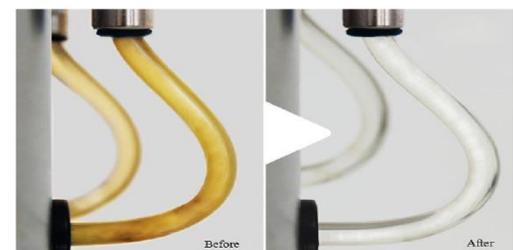
Why to Choose Aquagroup;

- Flexible Financing
- Pre- Survey
- Installation
- Training
- Commissioning
- Service and Maintenance
- 24/7 Hotline
- Application Consultancy



Before Treatment

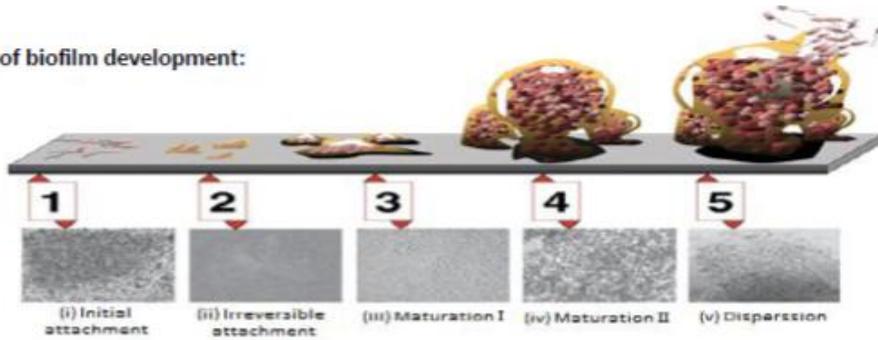
After Treatment



Before Treatment

After Treatment

Five stages of biofilm development:

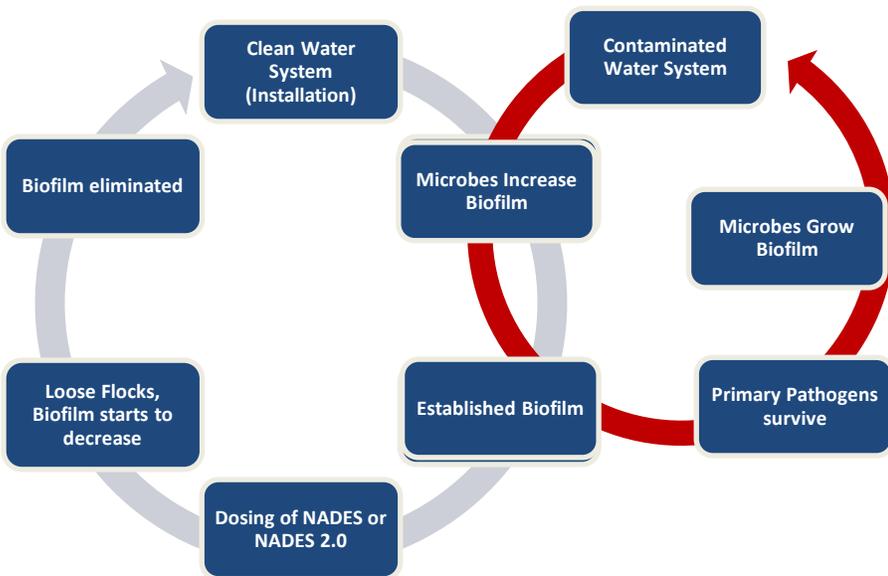


The ECA Disinfectant effect

- Clear germ free water
- Eliminating Biofilm
- Just-in-time production
- Environment friendly
- Guaranteed high water quality at all time
- No storage, no transportation nor handling of dangerous goods
- Simple operation of component
- Automatic process, reduction of human error

Factors Influencing Biofilm Formation:

- Bio available nutrients.
- Temperature – higher temperature leads to increase biofilm formation and growth.
- Water hardness.
- Applied materials.
- Processing of the material used.



Our Devices:

- Risk management tool: all parameters are continuously monitored before, during and after the production process.
- User-friendly Touch Screen. (Optional)
- Integrated data longer for recording all parameters.
- Solenoid valve with time control for water and product.
- Service-friendly.
- Economical and environmentally friendly.

Expert Competency:

- Interface between hardware provider and Expert knowledge.
- Highly qualified team of chemists, microbiologists and food scientists.
- Field experience. Support through validation.
- Fully equipped laboratory for internal analysis.





NON-IRRITATING

ECA Solution is non-irritating

ECA Solution is non-irritating and is authorized for use as a disinfectant for drinking water or water carrying systems; and at the same time it is completely safe to use and compatible with all materials and its corrosion level in the application concentrations is as low as that of drinking water.

GERM-FREE

ECA Solution frees from germs

ECA solution reliably destroys any microorganisms and its spores even in the weakest concentration levels. The reason is the unique working mechanism, which takes full effect and does not allow any resistance to build up.

QUICK-ACTING

ECA Solution is quick acting

ECA Solution effect in seconds even in the weakest concentration levels and quickly destroys microorganisms.

We remain at your disposal at any time.

Please contact us if you wish to evaluate your
specific saving potentials and applications

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